

**REMARKS**

Claims 36-54 were previously pending in the present application. No claims are currently canceled or added. Consequently, claims 36-54 remain pending in the present application. Reconsideration of the present application in light of the following remarks is respectfully requested.

The Examiner has rejected claims independent claims 36 and 44 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,343,440 to Kan, et al. (“Kan”) in view of U.S. Patent No. 6,201,765 to Ireson, et al. (“Ireson”) and ASEG/SEG Conference – Adalaide, 1988 (“Stewart”), among other references. Applicants traverse this rejection on the grounds that these references are defective in establishing a *prima facie* case of obviousness with respect to independent claims 36 and 44.

For a proper determination under 35 U.S.C. §103, the Examiner must step backward in time and into the shoes worn by the hypothetical “person of ordinary skill in the art” when the invention was unknown and just before it was made. In view of all factual information, the Examiner must then make a determination whether the claimed invention “as a whole” would have been obvious at that time to that person. Knowledge of Applicants’ disclosure must be put aside in reaching this determination. Resorting to “hindsight” based upon Applicants’ disclosure must be avoided in making any conclusion, as such conclusions must be reached on the basis of the facts gleaned from the prior art.

Here, it appears that the Examiner may not have made a determination of obviousness based on the claimed invention “as a whole” as required by patent law. Instead, it appears the Examiner may have used Applicants’ disclosure as a roadmap to tack together individual components of the claims collected from multiple prior art references. For example, none of the cited references provide suggestion for the combination proposed by the Examiner. Consequently, the motivation to combine the references in the manner proposed by the Examiner may, incorrectly, arise solely from the desire to arrive at a combination allegedly supporting obviousness of the claims. However, such motivation must instead come from the prior art. The

prior art itself must teach or suggest not only the individual elements of the claims, but also the combination of such elements in the manner recited in the claims. The Examiner has not indicated how the prior art itself teaches, suggests or provides motivation to combine Kan, Ireson and Stewart to arrive at the present claims. Moreover, Applicants believe Kan, Ireson and Stewart provide no teaching or suggestion for such combination. That is, even if Kan, Ireson and Stewart collectively teach or suggest all of the individual components of the present claims (which is not believed to be the case), the references do not collectively teach or suggest the present invention as a whole.

In combining multiple references for a §103 rejection, the Supreme Court has ruled that the “teaching, suggestion, or motivation (TSM) test” still applies, but should be used in a more “expansive and flexible” manner. *KSR Int'l. Co. v. Teleflex Inc.*, No 04-1350, 11 (U.S. Apr. 30, 2007). The Court stated that “a patent composed of several elements **is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art**. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a **reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does**. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *Id.* at 14-15, *emphasis added*.

In the present case, the prior art provides no reason why a person of ordinary skill in the art would combine the cited portions of Kan with the cited portions of Ireson and Stewart in the way the claimed new invention does. For example, where in Kan, Ireson or Stewart is it taught or suggested anything which would motivate a person of ordinary skill in the art to **combine selected elements of each reference** to arrive at the presently claimed invention? For example, the Examiner concedes that Kan fails to disclose that a plurality of surface located sources and a plurality of surface located receivers are used to obtain the claimed surface seismic data, and thus

cites Ireson. In this context, however, where in Kan or Ireson is it taught or suggested anything which would motivate a person of ordinary skill in the art to combine the cited portion of Ireson with the cited portion of Kan to arrive at a combination within the scope of the present claims? The Examiner also concedes that Kan fails to disclose that velocity is determined by inversion of surface seismic data, and thus cites Stewart. In this context, however, where in Kan or Stewart is it taught or suggested anything which would motivate a person of ordinary skill in the art to combine the cited portion of Stewart with the cited portion of Kan to arrive at a combination within the scope of the present claims? In other words, how do Kan, Ireson and Stewart teach or suggest the present invention as a whole? It is Applicants' belief that Kan, Ireson and Stewart, even taken collectively, fail to teach or suggest the present invention as a whole.

For example, the references do not teach or suggest combination of Kan's "Element A" with Ireson's "Element B" and Stewart's "Element C" to arrive at "Combination A+B+C" within the scope of the present claims. It is not enough that Kan teaches or suggests A, Ireson teaches or suggests B and Stewart teaches or suggests C – the references must also teach or suggest the combination of A, B and C in the manner now recited in the claims of the present application.

Additionally, the Examiner also concedes that Kan fails to disclose inverting surface seismic data, but the Examiner then alleges that "Kan does disclose finding the velocities above the drill bit with the VSP, and then using this data in the process of finding interval velocities ahead of the bit by inversion methods for seismic data that has been reflected from structures ahead of the bit and received at receivers in the wellbore." However, the fact that Kan discloses an inversion method but fails to disclose using inversion with surface seismic data is more indicative of the fact that Kan in fact teaches away from the present invention, or at least that a person of ordinary skill in the art would not be motivated to modify Kan to arrive at the present invention. Thus, it is counter-intuitive from Kan to modify Kan to arrive at the present claims. Moreover, Ireson and Stewart provide no teaching or suggestion to modify Kan in the counter-intuitive manner proposed by the Examiner.

Thus, for at least these reasons, the Examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met with respect to independent claims 36 and 44. Accordingly, Applicants respectfully request that the Examiner withdraw the §103 rejection of independent claims 36 and 44 and their dependent claims.

The Examiner has also rejected claims 49-51 under 35 U.S.C. §103 as being unpatentable over Kan in view of Stewart. Applicants traverse this rejection on the grounds that these references are defective in establishing a *prima facie* case of obviousness with respect to independent claim 49 for at least the reasons described above with respect to independent claims 36 and 44. Accordingly, Applicants respectfully request that the Examiner withdraw the §103 rejection of independent claim 49 and its dependent claims.

All matters set forth in the Office Action having been addressed, it is believed that all claims are in condition for allowance. Favorable consideration and an early indication of allowability are respectfully requested.

Applicants further note that no fee is believed required for consideration of this Amendment. However, if any fee is necessary, Applicants hereby authorize payment of such fee from Deposit Account No. 19-0610 (19.0380).

Respectfully submitted,

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